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AMERICAN NURSERYMAN

Chief Exponent of the American Nursery Trade

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EDITORIAL communications on subjects connected with nurseries, arboriculture or other phases of commercial horticulture are welcomed by the editor. Also articles on the subjects and papers prepared for conventions of nursery associations.

MARGINAL PRODUCTION.

One of the undertakings of the federal Department of Agriculture in the new deal is the purchase of farm lands of proved unproductivity and their return to the public domain, from which they came.

From the point of view of agricultural producers, this is a good move, because it removes, to the extent of the purchase of such land, the problem which it always presents. In the best of times marginal land furnishes a livelihood; in times of adversity it shows the owners a loss. It contributes to the supply of low-grade products and creates unsalable surpluses.

But the return of such land to the public domain will not remove the problem of marginal production. It affects the nursery industry not so much in the cultivation of less useful tracts

as in the production of stock by those persons who, like marginal land, lack the necessary ability and resources to do a good job. The man who grows nursery stock as a side line, the man who gets a livelihood out of his growing but no return on his investment, the man who uses his family in his operations to compete against the employer of hired help—all these are a problem to the nurseryman who is producing on a business basis, paying wages, making a return on investment and seeking an adequate business profit.

The problem is not one peculiar to the nursery industry. It is present in every industry in which the capital required to establish an enterprise is not of a large amount. Probably it will continue so long as men will shoulder the responsibility of enterprises of their own for less money than they could work at shorter hours for someone else. No one has broached any scheme to cope with this condition. It is an ever-present one, which becomes more acute in periods of depression, when unemployment stirs a greater number of individuals to undertake enterprises of their own.

TO STUDY OPEN PRICE PLAN.

President Roosevelt's appointment of a committee of four cabinet members to report on a future policy toward open price provisions in codes of fair competition should result in clarification of this issue.

Delays have occurred in granting approval to a number of codes of fair competition because of unwillingness of the National Recovery Administration to accept open price provisions. Senatorial and consumers' advisory board attacks on the device have added to the uncertainty as to the extent to

which open price agreement will be permitted in codes in the future.

Without open price agreements, many industries will lose interest in the N. R. A. entirely. The elimination of open price provisions in the codes will transform the latter almost entirely into a wages and hours agreement for them, and with the revival of cutthroat price competition maintenance of minimum wage and maximum hour standards will become impossible in many cases, it is argued.

Furthermore, open price agreements have been in effect in certain industries for a long time past and do not date merely from the establishment of the N. R. A. The courts have approved a number of pertinent principles and practices.

It is well to remember, however, that open price associations differ widely among themselves. Some provide full publicity for all prices and price changes, to be made available to all producers, small and large, and consumers as well. Other open price agreements are much narrower in scope, giving only limited publicity and leaving out certain important data in connection with the prices filed, such as quantity discounts allowed. In addition, there is the question of whether a preliminary waiting period should elapse before the filed changes in prices are to become effective.

All these problems doubtless will be given careful and expert consideration by the cabinet committee appointed by the President.

With fifty shares, no par value, the Hypoluxo Nurseries, West Palm Beach, Fla., have been incorporated. The directors are W. W. Foskett, P. W. Potter and W. A. Cobb, Jr.

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AMERICAN NURSERYMAN

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The Chief Exponent of the American Nursery Trade

*The Nurseryman's Forte:
To Make America More Beautiful and Fruitful*

Vol. LIX

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No. 8

Propagation of Evergreens

**G. B. Durham, of Rhode Island State College, Reports on Tests
under Different Temperatures at Different Times of the Year**

It has long been a problem for nurserymen to obtain satisfactory rooting response on many of the common evergreens and practically impossible to root many of the less common.

This test, which was carried out under the direction of G. E. Adams, dean of the school of agriculture and home economics at Rhode Island State College, Kingston, was started in the fall of 1932, at the request of several of the larger growers in the state, with eleven common needle-bearing evergreens, two species of *evonymus*, one *ilex*, one *rhododendron* and one *laurel* as the basis of work. Later in the experiment *azaleas* and *heathers* were added.

The material used was *Taxus cuspidata*, *T. cuspidata nana*, *Chamaecyparis pisifera filifera*, *Thuja occidentalis Douglasii pyramidalis*, *T. occidentalis lutea*, *T. occidentalis Rosenthalii*, *T. occidentalis Vervaeana*, *Juniperus chinensis Pfitzeriana*, *J. chinensis Sargentii*, *J. excelsa stricta*, *J. Sabina*, *Evonymus alatus*, *E. latifolius*, *Ilex opaca*, *Rhododendron maximum* and *Kalmia latifolia*. Later *Azalea mollis* and *calluna* species were added to the test. Much of the apparatus employed was loaned by the rural electrification committee of the New England Light & Power Co.

Stock from Nurserymen.

Cuttings were taken on the current year's growth on stock furnished by the nurserymen on the mainland of the state, i.e., stock that was supposedly free of any of the common seed bed diseases.

Due to the fact that there is always more or less controversy as to the particular type of cut to take, the stock was divided into three approximately equal piles and straight, heel and mallet cuttings were taken from each species at the time of placing in the propagating beds. The main bulk of the first run of stock was placed in the beds the last ten days of November.

Subsequent microscopical examinations of free-hand sections for starch content were made as soon as possible to determine whether there might not be a correlation between the amount of starch present in a cutting and the rate of rooting. A standard iodine potassium iodide solution was used.

To do away with error due to heat

losses, all sections of the benches were insulated on the bottom with from one inch to one and one-half inches of magnesium wool, water-bound and covered with a coat of shellac, followed by a coating of waterproof varnish. This substance had enough natural cracks, due to drying, to take care of drainage of any excess water that might be added to the benches. As a further drainage precaution, from one inch to one and one-half inches of slag cinders were used on top of this insulation. The slag also acted as an aerating medium. On top of these base materials, propagating media of coarse sand, sand and granulated peat moss and peat moss and soft coal cinders were spread to a depth averaging about four inches. The two last-named media were mixed in proportions varying from one-third to two-thirds peat moss and the remainder sand or cinders. Sand was used at the especial request of the growers who seldom used any other medium.

Temperatures.

Overhead heat was from electric coils placed eighteen inches above the cutting bed. Subterranean heat was from lead-insulated cables placed from three to four inches below the top surface of the propagating media. All heated sections were thermostatically controlled and metered.

Sections 1, 3 and 5 were control sections and received no heat other than house temperature. Control section temperatures varied from 58 degrees Fahrenheit in section 3 to 61 degrees in section 5, showing that one-half peat and one-half cinders gave a slightly warmer medium than sand or sand and peat.

Overhead heat temperatures varied from 60 to 64 degrees.

Subterranean heat temperatures varied as follows:

Section 4A, one-half peat, one-half cinders, 78 to 83 degrees.

Section 4B, three inches sand, one inch peat, 69 to 73 degrees.

Section 6A, one-half sand, one-half peat, 69 to 73 degrees.

Section 6B, sand, 70 to 83 degrees.

Sections 4A and 4B were on the same meter and coil. Sections 6A and 6B were on another, showing the effects of media on bed temperatures.

Representative samples are taken for illustrations to conserve space, although

the total results would vary somewhat if all varieties and species were used.

Table I represents two forms of *taxus* in the different sections. It is interesting to note that the variety *Taxus cuspidata nana* is usually considered hard to propagate. Here it gave better results in heated beds than the parent form. It also threw roots on the majority of cuttings in much shorter time than did *T. cuspidata*. Subsequent batches of cuttings taken by students as late as April 1, 1933, gave similar results, but with a shorter interval of time.

Thujas and Junipers.

Table II represents one of the *thujas* that is usually difficult to propagate, as well as one of the hardest of the *junipers* under normal propagating conditions. Both of these forms are usually susceptible to propagating bed diseases, which account for most of the mortality. No appreciable seasonal difference was observed in *thujas*, although *junipers* taken from mid-February to mid-March were well rooted ten to twelve weeks later in the heated beds other than sand.

Table III shows some of the broad-leaved evergreens that might be of commercial importance in some parts of the country. *Evonymus latifolius* taken in the fall will root well under most conditions if given time enough. When, however, this species is cut in the early spring, the response is rapid under heated conditions, with the growth continuing throughout the growing season. Those rooted from fall or winter cuttings usually remain dormant during the following growing season. Similar results were obtained with *Ilex opaca*, but the subsequent growth in this case seemed to be equal. The main factor, then, would be a shorter season, with less labor and heat outlay. The main disadvantage to spring propagation is that it interferes materially with other duties of commercial growers.

Azaleas and Heather.

Azalea mollis cuttings taken October 28, 1933, were rooted four weeks later at a temperature of 80 degrees in peat moss and cinders, while those in other media at the same or lower temperatures showed no signs of rooting much later. Scotch heather cuttings taken

Table I—Showing Propagation of Two Varieties of *Taxus* at Different Temperatures.

Variety	Bench	Struck	Callus	First Rooting	Last Rooting	No. Died	No. Rooted	Per Cent Rooted	Remarks
<i>Taxus cuspidata</i>	1	11/22/32	1/4/33	6/3/33	7/5/33	6	33	84.6	
	2A	11/22/32	1/9/33	6/3/33	7/5/33	13	26	66.7	
	2B	11/22/32	1/4/33	6/3/33	7/5/33	14	25	64.1	
	3	11/22/32	1/4/33	3/7/33	7/5/33	3	38	92.6	
	4A	11/22/32	1/4/33	1/6/33	6/21/33	0	40	100.0	
	*4B	11/22/32	1/4/33	1/30/33	3/30/33	1	31	96.8	
	5	11/22/32	1/30/33	3/20/33	9/23/33	8	31	79.5	
	6A	11/22/32	1/9/33	3/20/33	4/3/33	4	9	69.2	*Shifted to flats 4/3/33
	6B	11/22/32	1/9/33	1/30/33	6/21/33	27	12	30.8	
<i>Taxus cuspidata nana</i>	1	11/30/32	1/4/33	2/7/33	7/5/33	5	41	89.1	
	2A	11/30/32	1/4/33	3/4/33	7/5/33	9	34	79.0	
	2B	11/30/32	1/4/33	1/30/33	7/5/33	11	38	77.6	
	3	11/30/32	1/9/33	2/20/33	7/5/33	3	43	93.4	
	*4A	11/30/32	1/4/33	1/16/33	3/7/33	0	43	100.0	
	4B	11/30/32	1/4/33	1/30/33	5/21/33	13	36	73.5	
	5	11/30/32	1/4/33	3/7/33	5/21/33	24	14	36.8	
	6A	11/30/32	1/16/33	1/30/33	4/3/33	0	36	100.0	
	6B	11/30/32	1/16/33	1/30/33	5/21/33	7	36	83.7	

Table II—Giving Propagation of *Thuja* and *Juniper* Normally Difficult.

Variety	Bench	Struck	Callus	First Rooting	Last Rooting	No. Died	No. Rooted	Per Cent Rooted	Remarks
<i>Thuja occidentalis lutea</i>	1	11/23/32	1/23/33	7/5/33	7/5/33	57	7	10.9	
	2A	11/23/32	4/20/33	7/5/33	7/5/33	57	2	3.4	
	2B	11/23/32	1/16/33	7/5/33	7/5/33	60	10	14.3	
	3	11/23/32	1/9/33	4/25/33	7/5/33	33	11	25.0	
	4A	11/23/32	1/4/33	1/16/33	6/21/33	45	15	25.0	
	4B	11/23/32	1/4/33	6/21/33	6/21/33	44	9	17.0	
	5	11/23/32	1/9/33	.....*	6/21/33	42	0	00.0	*Removed on above date
	6A	11/23/32	1/16/33	4/3/33	6/21/33	46	2	4.2	4/3 shifted to flats
	6B	11/23/32	1/9/33	6/21/33	6/21/33	67	2	2.9	
<i>Juniperus chinensis Sargentii</i>	1	11/22/32	3/20/33	7/5/33	7/5/33	30	35	53.8	
	2A	11/22/32	4/20/33	7/5/33	7/5/33	33	41	55.4	
	2B	11/22/32	4/20/33	7/5/33	7/5/33	60	14	18.9	
	3	11/22/32	4/20/33	7/5/33	7/5/33	53	17	24.3	
	4A	11/22/32	1/9/33	3/20/33	6/21/33	24	30	55.5	
	4B	11/22/32	1/23/33	6/21/33	6/21/33	35	33	48.5	
	5	11/22/32	.....	6/21/33	6/21/33	27	1	3.6	
	6A	11/22/32	.....	4/3/33	6/21/33	14	2	12.5	4/3 shifted to flats
	6B	11/22/32	1/30/33	6/21/33	6/21/33	48	10	17.3	

October 28, 1933, were rooted and flat-bedded December 9 from the peat and cinder section. Cuttings in two other sections were not callused then. These cuttings showed a high starch content, almost black, when free-hand sections were treated with iodine potassium iodide solutions. This treatment was used as a check on all the evergreen cuttings struck during winter. Conifers that showed a high starch content in late October were callused in the heated sections by spring. Few were callused in the control sections. Those showing traces or slight starch content showed no signs of callusing in any section.

From the foregoing data, it would seem that there is a correlation between the amount of starch present and the rate of callusing and rooting at controlled temperatures. Seasonal fluctuations will occur in optimum conditions for most evergreens used in propagating by means of cuttings.

Short periods of high temperatures in a well aerated moisture-retaining medium will give the best results if the cuttings are kept free from disease.

No appreciable advantage could be seen in the type of cut used in this test.

Top or overhead heat is not beneficial in rooting evergreens.

Electrically heated beds appreciably hasten rooting in *taxus*, *ilex* and *evonymus* and seem to be commercially economical.

Table III—Showing Propagation of Broad-leaved Evergreens.

Variety	Bench	Struck	First Rooting	Last Rooting	Per Cent Rooted
<i>Evonymus latifolius</i>	1	11/18/32	12/19/32	3/18/33	89
	4A	11/18/32	12/8/32	12/9/32	100
	1	3/15/33	3/29/33	5/14/33	100
	4A	3/15/33	3/29/33	4/4/33	100
<i>Evonymus alatus</i>	1	11/18/32	2/4/33	5/25/33	100
	4A	11/18/32	2/4/33	4/4/33	100
	1	3/12/33	4/18/33	5/1/33	100
	4A	3/12/33	3/30/33	4/4/33	100
<i>Ilex opaca</i>	3	12/8/32	4/27/33	6/4/33	89
	4A	12/8/32	1/18/33	2/13/33	100
	3	3/10/33	4/30/33	6/4/33	100
	4A	3/10/33	4/1/33	4/15/33	100
<i>Rhododendron</i>	3	11/22	Callus 3/30/33	None rooted	
<i>Laurel</i>	4A&4B		Callus 1/4/33	Rooted 3/18/33	100

DAFFODIL SHOW AT NURSERY.

Many persons took advantage of the lovely days and the invitation which the California Nursery Co., Niles, Cal., extended to its friends to visit the nursery March 16 and the following week for its daffodil show. Among the outstanding specimens of daffodils was one of particular interest, Carmencita, a new bloom, with a dark trumpet and harmonizing creamy petals.

Among other favorites were Silver Star, white; Mrs. N. O'Melveny, white with a yellow cup; Firetail; John Evelyn, a double with a yellow trumpet; Barrii conspicuus, a popular variety with yellow cup; Van Waveren's Giant, a large trumpet type which holds up well; President Carnot, cream; Twink, with an orange center; Love-nest, a salmon trumpet; Tresserve, a

popular all-yellow, four inches across, supplanting Emperor in gardens; Alasnam, with a large flare to its trumpet; Eve, with cream trumpet and lighter petals; Seagull, which grows high above its foliage, and Diotima, yellow, six inches across. Mrs. R. O. Backhouse, with its pink cast, was also a favorite. For rock gardens smaller daffodils were shown, such as the hoop petticoat daffodil, *Bulbocodium conspicuus*; triandrus albus, and Angels' Tears. February Gold blooms in the month for which it was named. Queen of Spain is also suitable for rock gardens.

Guests were served refreshments in the garden surrounding the adobe house by girls in Spanish costumes, while musicians, also in Spanish dress, furnished music.

The nursery also invited its friends for the first part of April to view the tulips.

Federal Roadside Improvement

Wilbur H. Simonson, Landscape Architect, of the Bureau of Public Roads, Tells Department of Agriculture's Attitude

The national industrial recovery act has stimulated national interest in the planned development of our natural assets. The conservation of the scenic values along highways and the associated landscape problems involved in the development of the roadsides along them are subjects of increasing public concern. The rules and regulations approved by the special board for public works for carrying out the provisions of section 204 of the recovery act, authorizing grants to the state highway departments for the emergency construction of highways, indicate the government's recognition of this potential and widespread interest in the economic development of highways in an attractive manner.

The primary purpose of the recovery act is to put men to work. A careful analysis of the rules and regulations for the emergency construction of public highways and related projects reveals many fundamental requirements definitely set up for the efficient employment of labor on a nation-wide scale. Of necessity, some new planning features, previously not included in federal-aid requirements, are incorporated in the present program of highway improvements to effect this purpose.

Apportionment of Funds.

It is specifically required that not more than fifty per cent of the public works highway funds apportioned to any state shall be applied to projects on the federal-aid highway system outside of the corporate limits of municipalities; that not less than twenty-five per cent of such funds shall be applied to projects on extensions of the federal-aid system into and through municipalities, and that not more than twenty-five per cent of such funds shall be applied to secondary or feeder roads not now a part of the federal-aid system. It is also definitely provided that projects shall be selected in at least seventy-five per cent of the counties of each state, reasonable consideration being given to the relative need for employment in such counties. The submission of carefully prepared statements of proposed assignments of the funds apportioned to each state highway department insures a well balanced distribution and reasonably planned diversification of projects in different localities.

Roadside improvement, being largely handwork, affords unusual opportunities for the employment of labor. A well balanced program of roadside improvement utilizes unskilled labor to a maximum degree. More than ninety per cent of every dollar spent for this kind of construction work ultimately arrives in the pay envelope of labor. Of this amount approximately sixty-five to seventy per cent is a direct benefit to local labor, while twenty-five to thirty per cent is a benefit to other labor indirectly engaged in supplying plants and incidental materials and equipment. Roadside improvement work, while providing so effectively for the direct em-

ployment of labor, also creates tangible values of a reasonably permanent nature. For these reasons, the regulations governing expenditure of the federal grants made for highway construction give an important place among the major objectives to the improvement and planting of the roadsides. Such work will be required to form a part of the program in all states.

Bureau Chief's Analysis.

The greater emphasis placed in the new program upon the improvement of the roadsides accords with the frequently expressed view of Thomas H. MacDonald, chief of the bureau of public roads, that the task of improving America's highways will not be completed until adequate attention has been given to the improvement of the roadsides as well as the roadways. Mr. MacDonald analyzes the problem as follows:

"Four major movements are needed to beautify and enhance the usefulness of the highways. They are:

"First, the complete elimination of advertising signs, not only those within the rights of way but those on private property along the rights of way;

"Second, the removal of oil filling stations, hot dog and lunch stands and roadside markets that encroach upon the right of way and regulation of distance from rights of way at which such establishments may be located on private property;

"Third, the planting of trees and shrubs along the roadsides, and

"Fourth, the location, design and construction of the highways in such manner as to preserve the natural beauty of the countryside."

Requirements of States.

In a memorandum of the bureau of public roads dated June 30, 1933, roadside improvement was interpreted by Mr. MacDonald to include the following:

"It will be required that each state highway department include in its program of construction on the federal-aid highway system a definite number of projects that will provide for the appropriate landscaping of a reasonably extensive mileage of parkways and roadsides. The work will be done preferably near the corporate limits of the larger cities, particularly where sufficient right of way is available to undertake projects of this character. It will include the selective cutting or pruning of existing growth, the removal of stumps, dead material, etc.; the obliteration of borrow pits, traces of old roads and other construction scars; the flattening of slopes and the rounding of slope intersections; the seeding or sodding of shoulders and slopes, and the planting of a sufficient amount of suitable material to accomplish a reasonably comprehensive roadside improvement. The planting of trees at regular intervals without regard to their environment or the composition of adjacent plant growth will not be considered as satisfactory.

"In order to carry out the work in a satisfactory manner, it is believed that it will be necessary for all state highway departments to employ qualified landscape architects and horticulturists to determine the proper kinds of plant material to be used in different soil and climatic conditions, and the most effective arrangement or grouping of the material, for each particular project location."

Plans developed by the state highway departments with the aid of such specialists will be submitted for approval to the bureau of public roads.

Roadside Landscaping Established.

Mr. MacDonald expects that roadside landscaping will become a regular department of the work of highway construction in the future, and he regards the provisions of the recovery measure as a first step in that direction. In the administration of the work provided for, it will be the purpose of the bureau to bring about in all states a number of demonstrations of the possibilities of pleasing roadside treatment at moderate cost and to develop the methods and organizations in both the state and federal highway agencies that will be necessary to carry on similar work on an extensive mileage in the future.

Also, in an address presented at the eighteenth annual convention of the American Association of State Highway Officials, held in Milwaukee, Wisconsin, October 9 to 11, 1933, Mr. MacDonald said:

"Roadside improvement consists largely of finishing the roadsides to heal the scars of construction operations by the addition of seeding and well designed planting. A prominent place has been given improvements of this kind in the rules issued for the conduct of the recovery highway program.

"It is universally recognized that a very large percentage of the total use made of the highways is for recreational and social pursuits. Reasonable expenditures for providing pleasant and beautiful roadsides are wholly consistent with sound public policy, particularly now since this type of work can be used to advantage in providing employment that reaches rather different classes than normal highway operations.

Sentiment for Planting.

"As highway executives, we will fail to realize the exchanged sentiment if we are longer content to build roadways only and neglect to improve and to plant the roadsides. The highway departments have been called upon to submit projects for roadside improvement on a reasonable mileage. A few miles in each state will not be considered a reasonable mileage of such work. It is hoped, with the cooperation of the states, that work of this character will be sufficiently extensive to accomplish an adequate demonstration of the tangible benefits to be derived from roadside improvement, to indicate the methods most appropriate for doing work

of this character and to establish the basis for an organization in each highway department which can carry forward continuously work of this character.

"In this connection, wider rights of way, particularly for major highways, are necessary. The acquiring of land is slow and expensive. Most of the states need better laws for this purpose. Adequate planning for the future is dependent upon adequate (wider) right of way dimensions. Property values are lower and more easily secured now than they will be again in our generation. The result will be profitable to both the private owner and the public."

"We can confidently expect that in the near future communities which have been relying upon well improved roadways to attract outside traffic will be placing greater reliance upon beautiful highways. Already provision has been made for extensive work of this character in some of the states through the use of work relief labor, with other costs furnished by the use of highway funds. There is no reason why cooperative work of this character cannot be greatly extended."

Beautification to Parallel Building.

In working constructively along these lines, it is believed that continuing progress may be made in the development of the roadsides in every state. Placing this newer phase of highway improvement on a substantially permanent engineering basis during the present emergency would indicate that constant progress in roadside development should correspondingly parallel the earlier efforts of the road builder when typical demonstration highway projects were initiated and advanced in a similar manner.

The practical planning of the recovery highway program aims to put as many men as possible back to work as quickly as possible and to pay them a living wage. The 30-hour week and a minimum wage for various sections of the country have been established. The men are hired from employment lists prepared by state directors of reemployment. The main idea is to see that the projects undertaken are sound and useful and ready for early execution. Normal and efficient methods and practices are specified, so that the cumulative effects may extend to the farms, mills, shops, factories and nurseries that produce the materials and tools and incidental equipment normally needed in connection with roadside construction and improvement operations.

Economic Benefit.

The hiring of teams with such necessary equipment as plows, scrapers or wagons and the purchase of stable manure should benefit the local farmer. Grass seed and fertilizer requirements should increase the employment rolls of the seed houses and fertilizer manufacturers. The contract purchase of nursery-grown trees and other plant materials in accordance with approved specifications should enable the nurseries supplying these materials to reemploy the men needing work in their communities. While it is expected that the majority of the work will be done locally through regular force account methods under the immediate direction

of the state highway departments, nevertheless every element of industry and business associated in the execution of roadside improvement work will feel the quickening impulse that such diversified employment of labor will bring.

The recovery program for public roads marks the start of a more balanced conception by the government and its people of the possibilities afforded in the planned development of the roadsides along our highways. Roadside improvement is a most effective means of spreading work where labor employment is most needed. The inclusion of roadside improvement work as a definite and tangible part of highway construction, therefore, aids materially in the better balancing of the highway program to serve the employment needs of populated centers.

FIRST CALL FOR A. A. N. DUES.

The first call for dues for the ensuing year has been sent to members of the American Association of Nurserymen by Secretary Charles Sizemore. The dues payable now cover the period from July, 1934, convention to the July, 1935, convention.

In the statement sent out has been added an extra line, "Contribution on code expenses." At the last convention the executive committee advanced or loaned the code committee \$1,000 and, in addition, from the regional and state associations \$1,085 has been collected, making a total of \$2,085. Besides this, the code committee has spent nearly a thousand dollars which remains unpaid and has other work yet to do before this matter is thrashed out to the satisfaction of the government and the nurserymen, which, with the unpaid expenses already mentioned, will run it up to in the neighborhood of \$2,500 yet to collect. The committee members put up their own money for the thousand dollars mentioned and are waiting for the association to get in shape or the code committee to reimburse them. "Any contributions that you make on code expenses and the amount, of course, will be optional or voluntary on your part," reads Secretary Sizemore's notice.

"You will recall," adds the secretary, "that during the last two years the association was successful in restoring the second-class rating on nursery stock shipments by express, which was a flat reduction of twenty-five per cent all over the country and, in addition to that, when the railroads put in their new classification increasing the freight rates on nursery stock from thirty-five per cent to nearly one hundred per cent, the association was successful in offsetting those radical increases by having special commodity rates placed in nearly all sections of the country, which practically nullified the increases and, in fact, in many instances showed a reduction over the old rates. These two accomplishments alone are worth many times the cost of membership in the association.

"The majority of nurserymen attending the Illinois State Nurserymen's Association convention in Chicago last January were of the opinion that business this spring would run from thirty to fifty per cent more than last spring, and letters and information reaching the secretary's office indicate the same, which would show that the bottom in

AMERICAN NURSERYMAN

the nursery business was reached last year and evidently it is now on the upgrade rapidly.

"On account of the expenses mentioned above, our treasury is at bedrock. Therefore, on receipt of this letter, we will appreciate very much if each and every one of you who can pay their dues immediately and not wait until later on in the season. Of course, all dues should be paid in advance of the convention."

IDAHO OFFERS TREE SEEDLINGS.

Forest and shade tree seedlings suitable for windbreak and wood lot planting under the provisions of the Clarke-McNary act are listed in a bulletin that has been mailed to all farm owners in the state by the University of Idaho, agricultural extension division.

Several hardwood species—white ash, Siberian elm, black locust, silver poplar, willows and black walnut—can be obtained for 50 cents to \$1 per hundred. The willows and poplar are offered as cuttings.

The softwoods, or evergreens, are listed at 75 cents to \$1 per hundred. The species offered are the pines—Austrian, jack, lodgepole and ponderosa.

Approximately 500,000 seedlings are available. The individual farmer ordering seedlings under the cooperative plan agrees not to give away or resell the seedlings so purchased.

MICHIGAN FOREST PLANTING.

The extent to which forest tree seedlings are being supplied by the state is indicated in the following two paragraphs from the report of the department of forestry of Michigan Agricultural College, East Lansing:

"The two forest nurseries maintained by this department in cooperation with the federal government under the Clarke-McNary law furnished at cost 2,437,181 trees for forest planting in the state during the year ended June 30, 1933. This total far exceeds all previous years' sales and is due to our cooperation with the Roosevelt reforestation program. One million, three hundred and ten thousand trees were sold to the United States forest service for planting in the national forests in Michigan by the civilian conservation corps.

"The widespread interest aroused in reforestation has led to the expansion of our seed planting program in anticipation of a greater demand for stock in the future. To meet this demand, we are temporarily expanding the nursery to produce 5,000,000 seedlings in the next two years and are permanently enlarging the nursery to produce approximately 3,000,000 trees a year. To properly and efficiently handle the large volume of stock shipped from our East Lansing nursery, an enlarged and improved shipping shed is necessary. It is hoped that the plan submitted last year for that purpose will be acted upon favorably and promptly."

ADRIAN G. MOONS, proprietor of the Westfield Nurseries, Westfield, N. J., recently opened a downtown branch, at 116 West Broad street.

THE Roselawn Nursery, New Milford, N. Y., of which Frank E. Sisson is proprietor, opened a retail store at Warwick, N. Y., at the Miller building, handling also flowers.

Ornamental Plant Diseases

Nature and Control of Diseases Discussed at Short Course by
Dr. Paul E. Tilford, of Ohio Agricultural Experiment Station

Some years ago people, especially growers, had the idea that diseases were caused by poor conditions, such as cultural practices. But specialists have found that fungi, bacteria and viruses are the real cause of these diseases, and the other conditions only have an influencing effect.

Fungus is a plant, unlike higher plants, as it does not have any green chlorophyll matter present. Without this chlorophyll a fungus is unable to unite elements into food and in turn break this food down into energy for growth. Fungi are therefore parasites. The amount of rainfall, sunshine and vigor of the plant are all factors determining the resistance of any plant to ward off attacks from fungi and other diseases.

Rhododendron Troubles.

During the last few years many questions have come in regarding trouble with rhododendrons. In the majority of cases these troubles were due, not to diseases, but to attempts to grow these plants in improper places and in the wrong type of soil. Rhododendrons like a loose soil with a pH of 6 or below. Other common troubles are winter injury and sun scald. In the winter, because the plant has leaves, water is being given off, and roots are not able to take up much water from the soil. Then a sunny or windy day comes along, causing an excess of transpiration to go on. This causes a browning of the leaves, and next spring bacteria get into these injured areas and do their damage. To prevent this partially, mulch well, water and plant in a shady place. Die-back, a disease of rhododendrons, causes leaves to die back from the tip. When grown in full sunlight, the plants are seldom attacked. Lilacs are an alternate host and should not be planted in close proximity.

Three Blights.

Juniper blight may start in the beds the first year or occur on specimen plants. If you inspect the leaves of an attacked plant you will find dark black specks; these are the feeding bodies of the disease. Rain hits these bodies and spreads the disease. To control, spray the first year with Bordeaux, adding a soap spreader, one pound to fifty gallons of water. The better the job of spraying is done, the better the control. Spray every two weeks, regulating according to the weather.

Fire blight is another serious disease attacking many ornamentals, particularly Japanese quince, flowering almond, pyracantha, European mountain ash and some spiræas. Especially is this true when these plants are grown near pear or apple trees. It is a bacterial disease, starting in the spring. The bacteria ooze out from the old fire-blight canker, splash out by rain or are picked up by insects. The best control is to prune out blight cankers, especially from the various ornamentals. Formerly it was advised to prune the blighted cankers from pear and apple trees, but the former method is the better to follow. Also, a new disinfectant has been discovered,

a mixture of ferric chloride and denatured alcohol. This is painted on the canker, penetrating into it, killing the bacteria and preventing oozing.

Privet blight, or anthracnose of privet, is serious on European privet. The resistant varieties are California, Ibota, Amur river and regal. It forms cankers down around the base of the plant and before long kills the entire plant. In old plants of European privet some control has been secured by spraying with copper or dusting with lime-sulphur.

Rusts.

Another important disease is spot of maple. In the spring the spores emerge from fallen leaves and are carried by the wind to the young leaves for reinfestation. The first symptom is the appearance of these spores. During rainy weather the infections are most apt to occur. Burning or plowing under fallen leaves in the spring has some effect in the control of the disease.

Cedar rust has an alternate host with the apple. Galls from cedar produce spores which attack the apple, and galls of the apple produce spores attacking cedar. These rusts are usually not serious, and there is nothing gained by pruning out the infested areas. The best method of control is to avoid growing junipers in closer range than a mile from apple, pear or quince. Isolate the alternate host.

Blights on Peonies.

There are two blight diseases of the peony, both of which attack the young shoots when they come up in the spring, causing the leaves to turn black. Control these diseases by cleaning up all infected parts, removing affected plants, and by cleaning up and burning the tops in the fall, as infection occurs on the leaves. A danger that is of a more serious nature is that both blights go down into the crown. To prevent this, it is advisable to spray more susceptible varieties with Bordeaux in the spring as the shoots are breaking through the ground and follow this with a second spray in about a week.

Nematodes on the peony are of a serious nature, as are nematodes on any plant. The nematodes bore into the roots, causing the formation of a gall, which in turn prevents proper functioning of the roots in transpiration of minerals and water. The presence of nematodes can be determined by the yellowing of the leaves and a stunting in growth of the plant. It is hard to control. Feeding has been tried, but with no success. The only control of any value is the hot water treatment, which some growers have used with success. Soak the roots for fifteen minutes in water at 100 degrees; remove them and soak them for one-half hour in water at 120 degrees. This treatment is generally about eighty per cent effective.

Tulip blight has the symptom of developing white spores on the bloom. This is a fungous disease, which overwinters in the soil or in the bulb. If the bulbs are grown on a small scale,

sort over and remove affected bulbs. On a large scale, it is best to remove the outer covering. Once this disease gets into the soil, the only remedy is to change the growing area. Or, if the bulbs are grown in a bed, sterilize the soil with formaldehyde, one part to fifty, applying one-half gallon per square foot of soil.

Leaf blight of boxwood causes leaves to become yellow and fall off. Spores form on the underside of the leaves and fall into the crotches of the twigs, causing a canker which in time girdles the twig and kills it. Control by keeping plants in a thrifty condition, keeping blighted parts pruned out, shaking out fallen leaves and spraying in the spring with Bordeaux mixture.

Elm leaf spot seems to be more prevalent in years with a wet spring. The fungus lives over winter on fallen leaves, and spores emerge in the spring from these leaves, attacking the plant. Control by destroying fallen leaves by burning and spray in the spring two or three times.

Dutch Elm Disease.

The recently discovered Dutch elm disease has caused a great deal of interest in this country. It was first found in Holland, but has played havoc over almost all Europe, killing the majority of the elms. The disease was first found in the United States in 1930. Three infected trees were found in Cleveland and one in Cincinnati. Four more were found in 1932 and one in 1933, all in Cleveland. Last summer many infected trees were found in New Jersey, on Long Island and on Staten Island. In all, over 1,000 trees were found in this area. Symptoms are a yellowing and wilting of the leaves, causing them soon to drop off. The wood is streaked longitudinally and in cross section shows definite rings.

Bark beetles are the cause of the spread of this disease. If a tree is affected, the beetles carry the disease to another tree.

The disease originally got into this country by logs which were imported for veneering purposes, the beetles being within the logs. Since most of these logs were brought into New York harbor, the greatest outbreak was near that point. The beetles have also been traced by railroad lines carrying the logs. All logs now brought into this country must be treated with hot water.

As to the seriousness of this disease, it is doubtful whether it will ever become so serious as it was in Europe. The beetles are not common in this country, there are no large areas of elms and the eradication work will help to keep this disease under control.

WITH capital of \$50,000, the Wood-Howell Nurseries, Bristol, Va., have been incorporated.

A PROPAGATING house and several hundred plants at the nursery of F. W. James & Sons, National City, Cal., were destroyed by fire the night of March 13, the blaze believed to have started by the explosion of an oil stove.

Nursery Exhibits at Western Shows

Two Shows in Southern California Featured by Displays of Leading Nursery Establishments in That Section

FOURTH LOS ANGELES EVENT.

Spring Shrubs Featured.

The fourth annual Earl C. Anthony show, as it has been called, though really the fourth annual show of the Southern California Nurserymen's Association, followed in the footsteps of its predecessors and was another wonderful exhibition of spring-blooming flowers and shrubs. The show was held at the Earl C. Anthony automobile showroom, Los Angeles, Cal., March 23 to 25.

First-place honors for the best floral exhibit were almost evenly divided between the Howard family, Howard & Smith, Inc., Montebello, and the Paul J. Howard Establishment.

Perhaps the finest thing in the display of Howard & Smith, Inc., was its specimens of its new Rose Wildwood, to be released in 1936. It is an exquisite semidouble flesh pink that looks like an old single wild rose much enlarged. Interesting items in addition to the Wildwood rose were the firm's double gerberas in many new colors, including yellow, bronze and orange, and its new fragrant carnations in many dainty combinations of colors, the most exquisite of which are Candlelight and Mountain Haze. Great interest was shown by the public in the new colors that Howard & Smith, Inc., is ready to release in its hybrid strain of amaryllises—salmon rose and reddish brown. Perhaps the most interesting thing to the professional visitors was the new strain of single dianthus that will be ready for release in 1935. These dainty two-toned dianthus, although tucked away in one corner of the exhibit, caught the eye of all the professionals. Another interesting item was the firm's own strain of Giant Swiss pansies.

Pergola Setting.

The Paul J. Howard Establishment showed its flowers in, around and under a hand-wrought portable flat steel pergola especially designed by Paul Howard himself. It can easily carry the weight of vines and would be a valuable addition to anyone's yard. Some of the new things shown were the drooping fuchsia that Mr. Howard imported from Europe and on which he had just secured release from the government, a compact-growing hydrangea that has fixed brilliant colors in blue and pink, Japanese tree peonies in twenty different shades and a strain of long-petaled gerberas in the single form known as the Flowerland Special. All of these things were well set off by a carpet of the firm's new form of browallia suitable for bedding, and it was bordered with its trailing coleus similar to Los Angeles. Another feature worthy of mention was its strain of pure white *Primula malacoides*.

Roy F. Wilcox & Co., Montebello, who specialize in ornamentals, accented their exhibit of fine ornamentals with many white spathiphyllums and variegated caladiums.

The exhibit of the Beverly Hills

Nurseries, Beverly Hills, was a mass of flowering shrubs, with cinerarias.

The Germain Seed & Plant Co. used as the keynote of its large exhibit well bloomed specimens of some of the new things of which the company is selling the seeds this year for the first time, such as 100 per cent all double ruffled petunias, white rehmannia, Blue Cap and Blue Ball ageratum, Calendula Chrysanth, Petunia Pink Gem and the new dwarf petunia, Setting Sun.

Azaleas.

Coolidge Rare Plant Gardens, Ltd., Pasadena, had its usual exhibit of fine blooming Kurume azaleas well set off with blooming specimens of heather and thread-leaved maples. The display included several fine new named azaleas, perhaps the best of which was the firm's White April, which is an extremely large-flowered specimen.

Beck's Pansy Gardens, San Gabriel, used as the outstanding number in their large exhibit of pansies and violas the new Rose Queen.

The theme of the display of the Armstrong Nurseries, Ontario, was a piece of statuary set above a pool and called "To a Water Nymph," by Merrel Gage, Santa Monica. It was surrounded by hundreds of blooming specimens of rhododendrons, including azaleas; heucheras, heather and genistas, backed by ornamentals.

The Rust Nurseries, Pasadena, placed a miniature Easter scene in a half egg-shell in the center of their exhibit; this attracted more attention than the many blooming plants. The scene, backed by ornamentals, was surrounded with blooming clivias, Easter lilies, begonias and rhododendrons, with azaleas.

The Johnson Water Gardens, Hynes, had a fine exhibit of their water lilies and their two-toned green-leaved taro in a naturalistic pool in the middle of a garden setting.

The Del Amo Nursery featured its exhibit of ornamentals with some fine specimen plants of white wistaria and prunus in full bloom.

The Hagenburger Specimen Plant Gardens, West Los Angeles, used nothing but specimen cacti and other succulents in their exhibit and many were in full bloom.

MIDWINTER FLOWER SHOW.

Ninth Encinitas Event.

The ninth annual national midwinter flower show at Encinitas, Cal., March 14 to 18, was as much a departure from the preceding exhibitions as night is from day. Nearly the entire show was held outdoors, inclosed by 8-foot canvas walls.

When one entered the walled-in space, one received an impression of naturalness and spaciousness, because of the trees that were worked into the general plan. The canvas roof was only over the cut flowers and the stage. The whole layout was L-shaped with the flower tent in the corner of the

L. All of the exhibits were raised slightly and were marked off with natural rocks, as the beds might be in someone's garden.

The upper part of the L, where the general entrance was made, was a thing of beauty that will probably never be equaled again. The center of this section was devoted to the blue-ribbon exhibit of Fred H. Wylie, landscape architect of San Diego, who had constructed an open cabin over and extending to the front of an outdoor fireplace, that had been laid with a dry wall so that the back of the chimney was a beautiful rock garden. The front and the back of this exhibit were well defined with shrub planting. Mr. Wylie's efforts easily carried off the sweepstakes ribbon, as well as the first-place ribbons for the landscaping in the front yard and the rock garden.

Subtropicals.

Next to the Wylie exhibit in the matter of importance came the exhibit of rare subtropical plants and trees by the Williams & MacPherson Subtropical Nurseries, Encinitas. Among the plants displayed this year for the first time were the Surinam cherry, pitanga, from Brazil, bearing bright red fruit of a delicious flavor. It is said to make a good hedge plant. Another cherry that was different was the Patagonian cherry, from Argentina, a tree about eighteen feet tall, with bright red fruit hanging in large clusters. A new gooseberry from the Belgian Congo had fruit three-quarters of an inch in diameter, with only a few small seeds.

A shrub that appears to have a large future before it in the United States was that from which annatto, the commercial red, is obtained; it is native to Puerto Rico. *Myrica rubra*, the seeds of which take nine months to germinate, is similar to the native blackberry, but grows to the height of ten or twelve feet. Other interesting items were the tree tomato, the umkokolo, the Queensland nut, cerinam, the rose apple and pepino and the better known plants like sapota, mango, feijoa, cherimoya, papaya and Natal plum. All were artistically set under a lath house and carried the blue ribbon for their class.

Aloes and Cacti.

The Kate Sessions nursery, San Diego, had an interesting exhibit of Miss Sessions' fine collection of aloes, all of which were in full bloom. The McCabe Cactus Garden, San Diego, created a naturalistic setting for several hundred fine specimen plants of cacti and other succulents.

The Knickerbocker Nursery, San Diego, showed many small pots of its fine specimens.

Soledad Rock & Water Gardens, Pacific Beach, staged a display of succulents in a rock and water garden setting. The fine specimens and mass color effect, as well as the pleasing arrangement, made this an outstanding exhibit.

The Floral Point Nursery, Carlsbad, moved in a small lath house and dis-

played such things as woodwardias, fuchsias, begonias and kindred plants.

Rowland Wilson, landscape artist from Encinitas, displayed a garden scene, which he used to emphasize his specialty, arenaria, for lawns. The Rose Court Floral Co., San Diego, used many fine small ornamentals to set off a display of rhododendrons and azaleas.

The Badger-Tanner Nurseries, Rancho Santa Fe, had a display of their entire line, well set off by many colored pots and ornamental garden pottery. Of the many fine features in this exhibit perhaps the best was some fine bushes of Rose Victoria Harrington, which is to be renamed next year by the American Rose Society for the late Captain George Thomas, Beverly Hills, who originated and introduced it. Perhaps the next most interesting thing in the exhibit was some fine specimens of the new eucalyptus recently introduced by Hugh Evans, Santa Monica, which is called *Eucalyptus caesia*. This is a pink-flowering eucalyptus of the weeping form. The display of named camellias in full bloom was one of the best seen in southern California for some time. The marvelous Suebelle sapota in full fruit gained much attention.

SOUTHWESTERN AGREEMENT.

The form of a marketing agreement for the nursery trade of the southwest was agreed upon at a recent meeting of the directors of the Southwestern Nurserymen's Cooperative Association, Inc., with instructions that the association's attorney submit this to the Secretary of Agriculture and ask that a hearing be called at Dallas.

In a bulletin to the members, E. F. Fuller, executive secretary, had this to say:

"One of the most important board meetings since the organization began to function was held in Dallas on March 12. Plans for filing the marketing agreement with the Secretary of Agriculture were completed. The document as submitted by Edgar S. Hamilton, Houston, received careful study and after a few minor changes were made it was the unanimous opinion of the members present that it will serve the best interest of the organization as a whole, as well as serve each individual member. With the filing of the agreement a request for a public hearing is to be made, this hearing to be held in Dallas and to cover the territory which the association serves, namely Arkansas, Louisiana, Oklahoma and Texas. The date for the hearing will be given later on, and ample time will be allowed for the proper publicity to reach all parts of the territory prior to the time of the hearing.

"With the assignment of the representative from the Department of Agriculture to make a specific study of the territory which the agreement covers there should be some very important developments affecting each individual connected with the nursery business within the territory. As soon as the articles of agreement are completed by Mr. Hamilton and filed with the department in Washington, this office will give as much publicity to all phases and details of interest to all as is possible for us to give you."

Mr. Fuller reported five new members since last publication, and some fifty additional dealer agreements signed.

"PAINESVILLE NURSERIES"



ASIDE from a complete line of general Nursery stock in every department, we specialize in:

FIELD-GROWN ROSES
FLOWERING CHERRIES
FLOWERING CRABS
FLOWERING THORNS
FLOWERING CORNUS
AZALEAS
DAPHNE CNEORUM
ETC.

MAPLES—Norway and Sugar.
SYCAMORE, ELMS, ETC.

Our production keeps abreast of popular demand.

Our products emphasize Quality.

Our prices speak for themselves.

The Storrs & Harrison Company PAINESVILLE, OHIO

OBITUARY.

Walter H. Greening.

Walter H. Greening, for many years superintendent of the Greening Nursery Co., Monroe, Mich., died March 25 at the Ypsilanti state hospital. Mr. Greening, who was 52 years old, had been in failing health for about five years and had been at the hospital for nearly a year.

Born in Monroetown, April 7, 1882, he spent his entire life there. He is survived by his father, George A. Greening; his stepmother, Mrs. Kate Greening; two sons, Walter J. and Howard B. Greening, and one brother, Otto Greening.

Funeral services were held March 28, with the Rev. Henry C. Miller, of Grace Lutheran church, officiating. Burial was in St. Joseph's cemetery.

O. K. Phillips.

Funeral services for O. K. Phillips, nurseryman of Rockdale, Tex., who died March 19, were held there March 21. Mr. Phillips was 63 years old and had been in business at Rockdale for thirty-eight years, going there from Alabama.

Mr. Phillips is survived by his widow; two sons, Harry Wayne and Jack; a daughter and two sisters.

DENVER, COLO.

The nursery trade in Denver has a much better outlook than at this time a year ago. A virtual water shortage existed at this time last year, and word was passed along, either officially or unofficially, that water would not be available for new lawns or new plantings of any kind. The season was almost at an end when the life-saving spring snow swept away the scare of a water famine, but the damage had been done, and the season was not a good one for local nurserymen. This year has no bugaboo of a water famine and, with the general upturn of business and more interest in home planting, the local nurserymen find themselves in the midst of what looks to be the best spring business for many years.

WALTER SHEETZ, nurseryman of Riverside, Cal., talked to the Riverside Woman's Club March 22, on gerberas. Mr. Sheetz presented each member with a gerbera and a book of garden plans.

MAURICE FERRELL, Ann Arbor, Mich., has taken the position as manager of the Vanderkamp Nursery and of the private grounds of F. C. Soule, owner, located at Cleveland, Oswego county, N. Y.

New England Nursery Notes

W. N. Craig Reports on Effects of Severe Winter in the East on Roses and Shrubs—Tells Best Anemones

CLIMBING ROSES.

In the east the winter just past has taken a terrific toll of climbing, pillar and rambler roses. Those with Wichuriana blood in them, including Dorothy Perkins and the fine set of varieties raised by the late M. H. Walsh, of Woods Hole, Mass., have come through pretty well, although in some places even they are badly killed back. But when we come to the varieties, many of them introduced by Dr. Van Fleet, which carry larger flowers and have, in the main, attractive foliage, we find such popular varieties as Silver Moon, Dr. Van Fleet, Mary Wallace, American Pillar, Primrose, Emily Gray and others killed to the snow line and in some cases dead entirely. Those who each year go to the trouble of cutting their plants loose and laying them on the ground, where they receive a mulch, are happy this season and feel that their labors are fully justified. There will be a scant show of flowers on these varieties in the east this year.

Of the newer varieties, New Dawn has come through better than Dr. Van Fleet. Golden Climber (Mrs. Arthur Curtiss James) heeled in last fall, but not buried and with most of its wood aboveground with an evergreen protection, killed back little; no more, in fact, than New Dawn, which speaks well for its hardiness. If this grand golden yellow variety will stand such a winter as the past one, we can confidently advise people to plant it. Roserie killed back badly, Ghislaine de Feligonde, of the older yellows, came through almost unscathed. That fine rose, Paul's Lemon Pillar, wintered pretty well. Star of Persia is about dead, and Mme. Gregoire Staechelin has no green wood above the snow line.

PLANTS DOUBTFULLY HARDY.

Jasminum nudiflorum is not classed as dependably hardy. Last year it flowered freely in Massachusetts in February, but it had little chance to do so this year, with sixteen readings that month of zero or near it. Plants had a little wood killed, but produced some flowers in April; these were but lightly protected.

Lonicera nitida had its tops killed back, but came through with plenty of green foliage.

Ligustrum lucidum suffered badly and was cut down to the snow line. For about ten years it had hardly even lost a leaf.

Pyracantha coccinea Lalandii was killed back considerably, although occasional plants were not harmed at all.

For the first time *Cotoneaster salicifolia floccosa* was killed back near to the snow line; below that level its leaves are still perfectly green.

Hybrid rhododendrons all through the east will be virtually flowerless this year, and many of the less hardy ones are killed back to near the ground. Some of the native varieties have most of their flower buds killed.

The Korean boxwood has come

through unharmed. *Buxus sempervirens*, even where not covered with burlap or evergreens, has its tops burned, but has not suffered any serious harm. In some cases where temperatures were higher, plants look rather badly; these latter were regularly covered with burlap each winter and it is a question whether this practice does not make the plants tenderer.

English ivy used as a ground cover looks pretty well, but even the variety *baltica* is badly killed back this season, while the common *Hedera Helix* has few green leaves left on it and much of the wood is dead.

Some of the azaleas are badly hit, and there will be only scattered flowers on *A. Kaempferi* next month. We have much to learn about winterkilling, as some subjects usually classed as doubtful have come through as well as, or better than, others thought to be ironclad. California privet received a staggering blow, and many miles of it are cut to the ground; in some cases the plants seem all right, but the immediate result will be a lessening of the demand for this pretty, quick-growing, cheap and rather undependable plant and a greater use of the other varieties which are much hardier.

THE HADIEST FORSYTHIA.

For a number of years there has been no winterkilling of forsythias, and each year they have been a perfect golden mass of flowers, with *intermedia spectabilis* and *primulina* the finest. This year in New England, beyond a few twigs with blooms near the ground, plants are alive, but virtually flowerless, with the one exception of *ovata*, from Korea. This plant from a colder region makes a quite shapely bush; it does not carry the great wealth of flowers of the other varieties, but its greater hardiness is proved in its withstanding several readings of 18 to 20 degrees below zero with buds all intact. Not so fast-growing as the more commonly planted varieties, it is likely to be propagated in greater numbers after this season. In so far as the wood is concerned, forsythias are very hardy.

ANEMONES.

Both early and late, the anemones are extremely useful in the hardy garden. First to flower in April is *A. vernalis*, which is a lovely alpine with excellent vitality and succeeds with just as little care as the more robust-

growing *A. Pulsatilla*, better known as the pasque flower. There are lavender, pure white and reddish shades of the latter, but the lavender is much the best. These anemones come readily from seeds, but are also easily increased by root cuttings in late fall. When well established in a congenial soil, *Pulsatilla* will make quite large clumps and grow to a height of fifteen to eighteen inches. It is a plant which is never in oversupply.

Sometimes recommended for garden culture are the *St. Brigid*, *coronaria* and other early-blooming varieties which make tubers. I have once or twice succeeded in wintering these in a dry place in the rockery, but it is more or less of a gamble; a cold greenhouse or coldframe is the place for them. They come in many colors, some of them very rich. Sometimes they are suggested for outdoor culture, but that is not advisable where winters are cold.

The autumn-flowering section is an important one. These varieties, when properly planted and cared for, are bound to win the plaudits of every flower lover. September Charm comes in well in advance of the japonica type and when well done is fine. It does not seem to have the vigor or hardiness of japonica; I trust we may learn something of its likes which will make it possible to grow it better. *Hupehensis* comes in ahead of japonica, but the color is not to the liking of many amateurs. It is a dwarfier grower and has its place in the garden; the improved form seems rather more robust than the type. Japonica itself is one of the loveliest of all autumn-flowering perennials. The plants will rarely flower much the first season; they are usually killed by frost just as they are expanding. The second year, however, they will push up their spikes much earlier and start to expand early in September. Out of a number of varieties, I still think japonica alba, the single white form, the loveliest. Whirlwind, double white, is far less interesting. The single pink is good, but I prefer Queen Charlotte, the double in this color. There are other good varieties, like Alice, Kriemhilde, Prince Henry and Lady Ardilaun, but my choice for the two best would be japonica alba and Queen Charlotte. These anemones are easily increased by root cuttings during winter. They require more mulch in winter than the general run of perennials. They need copious supplies of water in late summer.

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CATALOGUES RECEIVED.

[In writing for a copy of any of the catalogues reviewed below, please mention that you saw it described in this column of The American Nurseryman.]

Ye Olde Toll Road Gardens, Whitman, Mass.—Spring bargain list of dahlias, gladioli, shrubs and roses.

Willadean Nurseries, Inc., Sparta, Ky.—Trade list of evergreens, deciduous trees and shrubs and vines.

American Bulb Co., Chicago—Wholesale catalogue describing hardy herbaceous plants and their usefulness in florists' activities.

R. H. Jones, Peru, Ind.—Price list of hardy plants and bulbous items. Oriental poppies are a specialty. Mr. Jones operates the Tuckdawa Gardens.

Superior View Farm, Bayfield, Wis.—Trade list of hardy field-grown plants offered by John F. Hauser. The stock is described as 1 and 2-year-old plants.

W. J. Engel & Son, Dayton, O.—A select list of rock garden and perennial plants. Subjects especially adapted to the corn belt are said to be represented.

Kelsey Nurseries, St. Joseph, Mo.—Spring bulletin No. 1, offering the grade counts in a general assortment of nursery stock. The catalogue is dated for March 20.

Lehman Gardens, Faribault, Minn.—An interesting list of rare and unusual rock garden plants, hybrid heucheras, wild flowers, lady's-slippers, hardy phloxes and hardy lilies.

Isaac Langley Williams, Exeter, N. H.—Wholesale list of hardy native lilies, orchids, ferns, aquatics, wild flowers, deciduous trees and shrubs and evergreens. Collected stock is represented.

Mount Arber Nurseries, Shenandoah, Ia.—Bulletin No. 3, offering a general assortment of nursery stock. Water lilies, other aquatic plants and nurserymen's supplies are additional items.

Springbrook Nursery, South Haven, Mich.—Mimeographed price list of about ten perennials and bulbs, described as field-grown. The firm sells at wholesale only. Colchicums are one of the specialties.

G. Ghose & Co., Darjeeling, India—The current season's offers of seeds of Himalayan flowers. Palm and conifer seeds are also mentioned. Inquiries are solicited for all Indian and Chinese seeds and plants.

Shenandoah Nurseries, Shenandoah, Ia.—Bulletin No. 1, with grade counts, dated March 12. A page is devoted to individually wrapped and carton nursery products for merchandising in the retail establishment.

A. M. Leonard & Son, Piqua, O.—Special list of rare and unusual plants, featuring flowering shrubs, to supplement the firm's large annual catalogue. Interesting items are those recommended for the winter garden.

Sunset Gardens, Siloam Springs, Ark.—G. C. Watkins' annual catalogue and price list from "the heart of the Ozarks." The nursery grows a general line of perennials and succulents, both wholesale and retail, the less common kinds being featured.

Evergreen Nursery Co., Sturgeon Bay, Wis.—Catalogue of evergreen shrubs, perennials and shade trees. Evergreens are the leading specialty, being offered in seedling and transplant sizes, as well as in specimens. Stock for Christmas tree planting is featured.

Inter-State Nurseries, Hamburg, Ia.—Though featuring nursery stock, this catalogue also offers seeds, bulbs and water lilies. Roses are a specialty of the firm, which will again plant the exhibition rose garden at A Century of Progress next summer. Saxa irides are listed. Stock for home orchards is pushed.

Hammonton Flower Gardens, Hammonton, N. J.—Wholesale catalogue of hardy perennials and rock plants, described as 1-year-old field-grown stock. Propagation is largely by cuttings, it is further stated. Only the choicer varieties are handled, according to the foreword. Special discounts are given on large quantities.

J. A. Bauer Plant Co., Judsonia, Ark.—Descriptive catalogue of strawberries and nursery stock, illustrated with views taken about the establishment. Mayme Bauer Grissom now operates the business, taking the place of her brother, the late J. A. Bauer, who was killed in an automobile accident last fall. Youngberry plants are a specialty among the varied fruit items.

C. Langbecker, Bundaberg, Queensland—A descriptive illustrated catalogue, featuring rose and fruit tree offers. Many other lines are represented, however, including palms, ornamental and flowering shrubs, dahlias and gladioli and miscellaneous bulbous items. Views of the nursery, consisting of thirty-five acres and said to be the largest in Queensland, with adequate irrigating facilities, are reproduced.

Bristol Nurseries, Inc., Bristol, Conn.—A finely printed and well illustrated catalogue of garden novelties and other desirable planting materials. Korean hybrid chrysanthemums are well featured in color plates as are other hardy mums. Gaillardia Sun God and Anemone September Charm are new items also featured. Rock garden favorites have a section of their own, as have garden lilies, roses, perennials, choice shrubs, etc.

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New Books and Bulletins

"SMALL-FRUIT CULTURE."

An excellent book, entitled "Small-fruit Culture," that should prove valuable both as a text and a reference work on the subject, as well as a guide in field practices, has been prepared by John S. Shoemaker, associate in horticulture of the Ohio agricultural experiment station, Wooster, and assistant professor of horticulture of the Ohio State University, Columbus. The fruits covered in this volume are the grape, strawberry, red, black and purple raspberry, blackberry, dewberry and related bramble fruits, currant, gooseberry, blueberry and cranberry.

In the preface the author states: "Much helpful information on small-fruit culture, the result of experiments, research and experience under a variety of practical conditions, is presented herein. This material has not yet been used to the extent it deserves, largely because it has never been brought together in conveniently usable form. The discussion in the text is based on information derived from: The extensive but scattered literature; suggestions (heretofore unpublished) from specialists at various institutions; growers' experiences, and the author's own work with small fruits. The practical application is emphasized throughout the text."

To indicate the completeness with which the author has covered his subject, the various points discussed under each fruit are cited; namely, the industry, regions and districts; development and characteristics of varieties; duration of planting; yields and costs; propagation; location, or site; planting; fruiting habit and fruit-bud formation; tillage; fertilizers; companion crops; types of supports; pruning systems of training; harvesting and marketing, and control of diseases and insects.

The book is published by P. Blakiston's Son & Co. and is available through The American Nurseryman at the publisher's price, \$3.50, plus 15 cents postage.

ITALIAN BOOK ON ELM.

Arturo Ansaloni, Bologna, Italy, well known to the trade in this country through his offers of tree seeds, is the author of a book, the translated title of which is "The Dutch Elm Disease and the Introduction and Cultivation in Italy of the Chinese Elm (*Ulmus Pumila* L.)." This 118-page book is entirely in Italian, with numerous illustrations, and is published by the Edizioni Selba, Bologna.

Commenting on the circumstances which occasioned the publication of the book, Arturo Ansaloni writes:

"The common elm (*U. campestris* L.), which is so widely planted here in the great Po valley, was faced by a serious menace when the Dutch elm disease broke out for the first time, four years ago.

"Because of the important role which this tree plays in our agricultural and forest economy, I conducted, since the discovery of the first cases, many researches and trials on the methods of controlling the disease and on the methods of propagation and cultivation of the Chinese elm. This species, up to now, has proved to have a high resistance against the Dutch elm disease. The results are described in the publication."

BULLETINS RECEIVED.

"Bush Berry Culture in California," by H. M. Butterfield, circular 80 of the California agricultural extension service, from the University of California, Berkeley. This 56-page pamphlet reviews the market for various bush berries in California, tells methods of propagation, planting and cultivation, treats the common diseases and insect pests and covers harvesting and marketing.

"Studies on Parasites of the Oriental Fruit Moth. II. *Macrocentrus*," by Philip Garman and W. T. Brigham, bulletin 356 of the Connecticut agricultural experiment station, New Haven. This 116-page pamphlet treats fully the Oriental fruit moth and its habits and also the larval parasite, *Macrocentrus ancylovorus*.

"Bacteriosis (Blight) of the English Walnut in California and Its Control," by B. A. Randolph. Bulletin No. 564 of the agricultural experiment station of the University of California, Berkeley, Cal. An 88-page comprehensive report of experiments over a number of years in widely separated sections of California, relating the history of the disease, the most effective spray periods, the type of spray, the methods of spraying and the cost and profits of spraying.

"Gladiolus Culture, Insects and Diseases," by P. R. Krone, E. I. McDaniel and Ray Nelson. Circular bulletin No. 149 of the agricultural experiment station of Michigan State College, East Lansing, Mich. An illustrated 32-page booklet, in which hybridization, thrips control and the control of scab and various kinds of rot are important topics in a comprehensive discourse on handling gladioli.

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SOIL TESTING SERVICE.

The Connecticut agricultural experiment station, at New Haven, has been working for several years to develop a soil testing service available to every grower in the state who wants to know what elements of plant nutrition are lacking in his soil and what elements should, therefore, be supplied by fertilizers or other treatment. Simple and reasonably accurate tests have been perfected by M. F. Morgan, head of the soils department, and last year more than 1,000 farmers, gardeners, home owners and park and forest directors sent in soil samples to be tested and received a report on the tests together with recommendations as to treatment required for soil improvement.

Because of weather conditions the soils department is now chiefly occupied with tests of greenhouse soils, but as soon as the ground has thawed out it is expected that many more growers will avail themselves of the testing service and send in their samples for analysis.

Mr. Morgan has just published in "The Interpretation of Soil Tests," the station's circular 95, a résumé of practical findings based on careful studies of the tests and results secured through them. Growers interested in this service should also see "Soil Testing Service," the station's circular 89, which gives explicit directions for securing representative soil samples and preparing them for mailing.

STONES FOR GARDEN SETTINGS.

The increasing interest in formal gardening suggests a new branch of activity for the nurseryman. There is a growing vogue for the outdoor living room, one of those little intimate gardens, hedged in for privacy, in which architectural features of the house merge with the landscape outside. These areas call for furniture as well as plantings, a small pool sometimes being the main feature. The nurseryman who will acquaint himself with the building of pergolas or tea houses, stone benches, stepping-stones and the like will find an eager public awaiting his services.

Stepping-stones and flagging are always acceptable, almost indispensable equipment, in the small formal garden, and a trail of single stones leading to some architectural garden feature, such as a sundial, gazing globe or bird bath is both good art and useful. The informal flagging in the formal garden, inset with grass and edged by low-growing plants does away with the unbroken straight lines of concrete or brick walk and gives a sense of age and dignity to the setting.

The cement or concrete stepping-stones or flagging, made in the natural gray or even in bright colors, is always suitable and permanent where natural flagstone is not easy to obtain. Forms for making these are sold by cement form-makers, a Des Moines firm making a set of three sizes sold for \$2.75. Its claim is that one man can make from 150 to 200 stepping-stones a day in any shape, size or color desired. Nurserymen will find an ever-widening field in this branch of their work and should investigate it.

A HALF interest in the Skookum Nursery, Centralia, Wash., has been sold by W. A. Leake to Cora A. Leake.

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Blue Spruce	5 yrs. TT	6-10 in.	30.00
Black Hills Spruce	3 yrs. S	4-6 in.	10.00
Austrian Pine	5 yrs. T	8-15 in.	20.00
Mugho Pine	3 yrs. S	2-4 in.	8.00
Mugho Pine	4 yrs. T	5-10 in.	14.00
Mugho Pine	5 yrs. T	8-15 in.	18.00

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Comments on Less Common Varieties

PAPAVER NUDICAULE.

If you will use a few moments to add up in your mind the qualities which a universally good plant should possess, you will find that ease of culture, broad appeal, long blooming habit and good color form the main points of excellence. A little further thought will show you that the Iceland poppy, *Papaver nudicaule*, possesses all of these and more. Why, then, is it not found in every garden and in the cutting grounds of every grower fortunate enough to possess such an accessory?

Few perennials are of greater value (or at least could be made so) to the grower than this poppy. Its natural blooming period extends from midspring until frost, during which time the plant will give the florist cut flowers of colors and of a grace not easily duplicated. And add to this fact that they carry a pleasing fragrance. These poppies are, in the nature of things, flowers for delicate handling, barring them from channels through which flow the staples of the industry, but they possess real merit for the grower who does his own retailing. Cut just before opening, they are long-lasting, and their present range of colors includes those in vogue. In addition to all of these good points, this variety is one of the subjects that can be hastened into bloom in frames weeks ahead of the regular outdoor crop. Culture is a simple matter, requiring the minimum of time and attention of any of the frame crops. As poppies resent disturbance, it is well to grow them where they are to flower. Place the frame over the planting sometime during the fall and give the plants a covering of loose litter. Then, when the spring sun has commenced to have a warming effect on the outdoor atmosphere, sash should be put on and the mulch gradually removed before growth starts.

The possibilities of Iceland poppies as a commercial plant crop have scarcely been touched. The fact that the plants are not moved easily when large has kept many growers from handling them. This may be overcome in some instances by growing in pots, yet this method has its limits, as plants of this type are not long happy under pot culture. One grower of my acquaintance has worked out a schedule of pot cul-

ture which calls for the sowing of seeds in winter just in time to bring the plants into first bloom when the selling season is active.

VIOLA PAPILIO.

It would seem unnecessary to call attention at this period of American gardening to so common a plant as *Viola Papilio*. Yet, from the letters which come to my desk, it is apparent that many growers have not made its acquaintance or, having seen it, failed to recognize just how good it really is. I know of few plants of more value to the gardener than this small viola. Here in north Michigan it is in bloom every month of the year except the three or four that the garden is in the grip of winter; where the winters are not so severe nor so long, it should bloom around the calendar, except in the south, where extreme heat would likely be too much for it.

I have been thinking of late years that the form we know in America as *V. Papilio* may not be the plant referred to by botanists as *V. cornuta Papilio*. The latter, it is said, is violet in color, with a small dark eye, while the plant I know as *Papilio* is violet to blue, shading to an almost white center, with usually a dark eye. The name *Papilio*, we know, means butterfly-like, which aptly describes the shape of the flower. Just where *Papilio* leaves off and *calcarata* starts is not for me to say, for the simple reason that European pansy violas, as we have them in this country, are almost always grown from seeds and most of them are too variable to show typical growth.

In any case, the plant we know as *V. Papilio* is a valuable plant, coming quite true from seeds and blooming in twelve weeks. In cooler parts of the country, it is a permanent and floriferous thing, fitting into many a garden scene.

OXALIS ACETOSELLA.

Nature's desire to clothe every part of the earth with some kind of vegetation has given us plants for all sorts of garden situations. Consequently, we have material for dry sunny spots in all kinds of soil, for the water and the bog garden, for part shade and for dense shade. There are a wide choice of sun lovers and a fairly wide selection of plants that like partial shade, but when we come to plants for dense shade the choice is quite restricted. That is all the more reason we should cherish the few that are at home in such situations.

The little shamrock-like plant, *Oxalis Acetosella*, which inhabits deep cool woods in the north is such a plant, though it seems to have had little notice from garden makers. I have a notion that its dislike of garden ways is one reason why the plant is seldom seen, for references to it in garden literature seem nearly always to point to its waywardness under culture. It has never been happy in my garden, lacking, evidently, the coolness and

moisture which it is accustomed to in nature. This *oxalis* is rare in the part of Michigan where I botanize, being found in deep woods in soil that is always moist and intensely acid. It is likely that failures to cultivate the plant could be traced to the absence of the last factor. In any case, I know gardeners who are able to supply the conditions named that can show as lovely patches of the plant as any I have ever seen in nature.

O. Acetosella is a low thing with radical leaves and one-flowered scapes from one to three inches high and white flowers veined purple. Propagation is easy by division of the rootstock.

MORISIA HYPOGAEA.

One of the disadvantages of gardening in a severely cold climate is that much of the beauty of more temperate regions is denied us. Northern gardeners find many compensations for this state of affairs, though it is not easy to fill the place of that lovely crucifer—*Morisia hypogaea*. It seems that this queen of the crucifers is not widely known in America, not even in that part of the country where it would be winter-hardy. The plant comes from Corsica, where it is said to grow in the lean sandy soil along the seashore, getting no higher than two or three inches and spreading its dandelion-like foliage over the sandy beaches by means of underground runners. *M. hypogaea* has been a capricious performer under my care, passing out for unknown reasons when put on a meager diet and temporarily growing too rankly in rich soil, but eventually following its anemic brothers to plant heaven. The flowers, which come all during spring and usually continue into the early part of summer, are golden yellow and large for a crucifer and sit close on the glossy green foliage. Altogether, this variety is a most charming plant and one that deserves all of the care necessary to make it happy.

Just what this care consists of I am unable to say from experience, for *M. hypogaea* has never taken kindly to my garden. In the first place, winters here in north Michigan are too cold for its well-being and it seemingly resents our dry summers.

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PRUNING FOR WINTER INJURY.

The past winter with its record-breaking low temperatures in the eastern United States has done considerable damage to ornamental woody plants as well as fruit trees. The flower buds of forsythia, many azaleas and rhododendrons, magnolias and even flowering dogwood have been killed in some sections. Many other woody plants have been injured or killed. Injury has been of two kinds. In the first place, the extremely low temperatures have probably been responsible for a large proportion of the injury. Then in February and March there were several warm days when the temperature reached 65 degrees, followed by sudden drops in temperature, in one case to 10 degrees. This sudden drop in temperature caused injury to deciduous material as well as the burning of large numbers of evergreens. Such a plant may not be seriously injured, but then again so many leaves may have been killed that the plant will be decidedly weakened during the ensuing year.

Winter-injured plants need intelligent care. Suggestions for treatment are given by Donald Wyman, of Cornell University. A severe pruning of such plants is not advisable, for it will do more harm than good, he asserts. In the first place, pruning should not be done on winter-injured plants until the extent of the injury is definitely known. When the buds break in the spring, deadwood can be easily distinguished from living wood, and at that time the deadwood can be cut out. A moderate pruning, in general, gives much better results than a severe pruning or none at all.

In trees it is often the water-conducting tissues that are likely to be injured. If too much leaf surface is produced in the spring, the leaves cannot get sufficient water for photosynthesis through the injured conducting tissues. On the other hand, if the trees are heavily pruned and only a small amount of leaf surface is formed, the leaves will be unable to manufacture sufficient food for the rebuilding of injured conduction tissue. Consequently, for trees at least, a moderate pruning is best.

For shrubs it is probably best to wait until the leaves come out, when only the deadwood can be cut out.

For evergreens, it may be impractical to prune for burned leaves only, though if there is deadwood, it should be cut out.

Apply no fertilizer to injured plants, at least until July 1. If fertilizer is applied in the early spring it may either burn the tissues or create large leaves and vigorous growth. As already mentioned, water could not be conducted to this new growth in sufficient quantity and it would probably die. After July 1, some of the plants may have formed new water-conducting tissue and a moderate application of fertilizer would not be harmful. However, it would probably be best to apply no fertilizer during the entire season.

Summing up, in trees the water-conducting tissues suffer most from injury. Moderate pruning is advised in order to get the maximum amount of leaf surface that can live with the reduced water supply. It is desired to have as large a leaf area as is possible at this time so that new water-conducting tissues can be formed. After this is done,

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nitrogen can be applied to get an even larger leaf area. However, in severe cases of winter injury it is probably not wise to fertilize with nitrogen until the following year.

PEAT MOSS CIRCULAR.

A small circular describing the uses of Swedish peat moss in horticultural activities is offered to florists, seedsmen and nurserymen by the Premier Peat Moss Corp., 150 Nassau street, New York. The circular contains much of interest and is free for the asking.

The Acacia Park Nursery, San Diego, Cal., was lately granted a permit for a lath house at 4060 El Cajon avenue.

FIRST thoughts of spring always came to the public with the arrival of catalogues early in the year. An additional portent now is the advertised introductions of "new models" of roses and other plants in much the same manner as the new automobile designs blossom out each year. This spring has witnessed the first really complete program of advertising and merchandising to create consumer demand for new plants—the campaign of the Jackson & Perkins Co. in which magazine pages in color are being used to feature the company's rose novelties.

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